

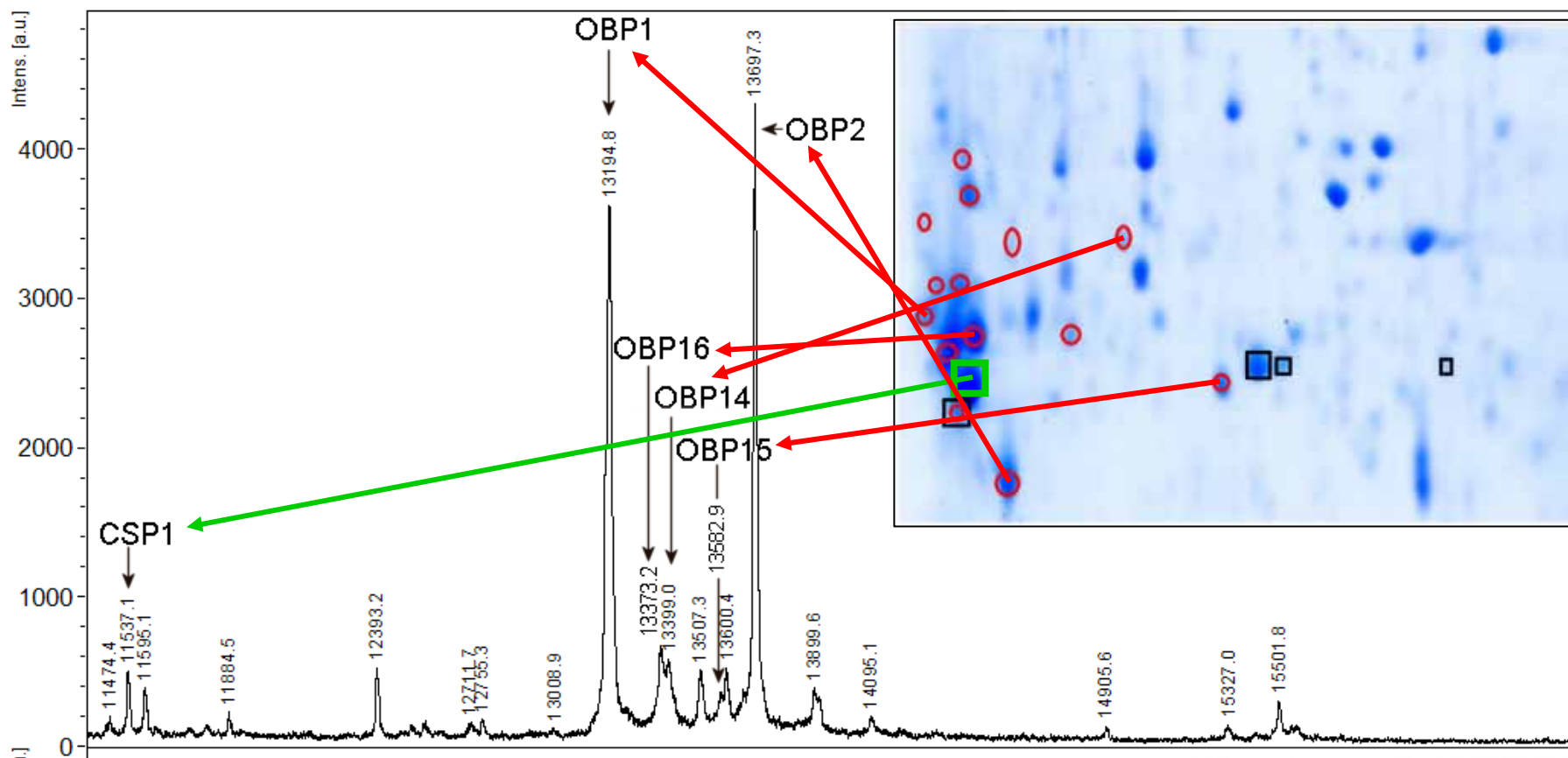


C.I.S.M.

L'applicazione della spettrometria di massa allo studio della chemorecezione degli insetti: dai feromoni alle proteine chemosensoriali

Francesca R. Dani

C.I.S.M.





PRIN 2002

PRIN 2006

European Network ENAROMATIC

PRIN 2008



C.I.S.M.

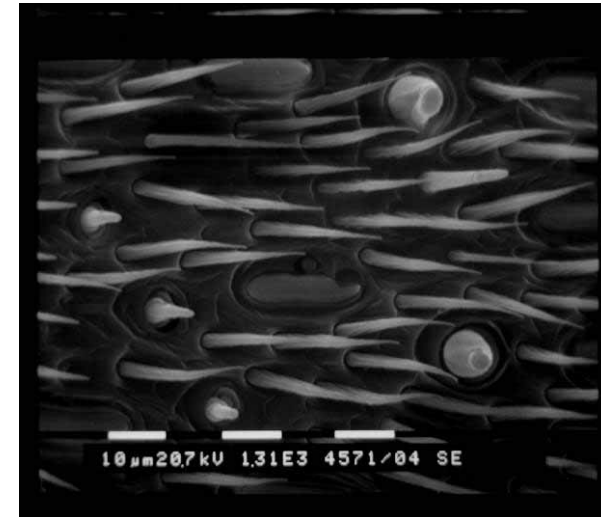
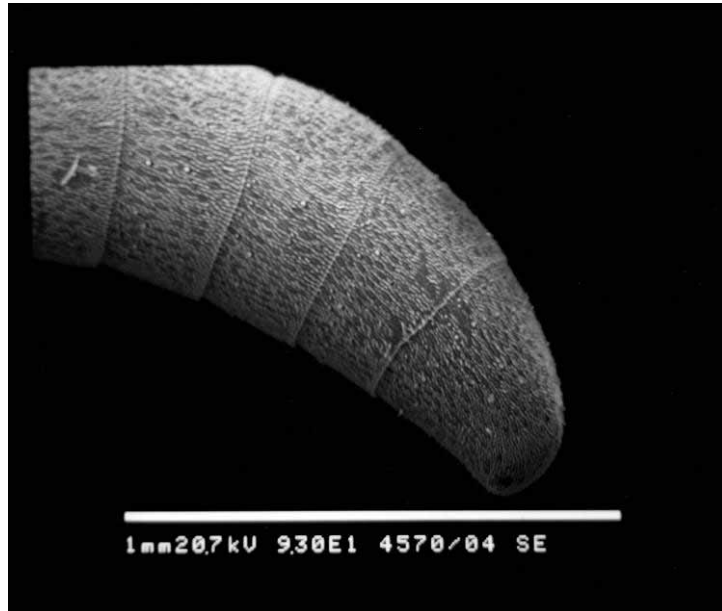
Collaborazione con Prof. P. Pelosi e Dr. A. Felicioli, Univ. Pisa

Dr. A. della Torre, Univ La Sapienza



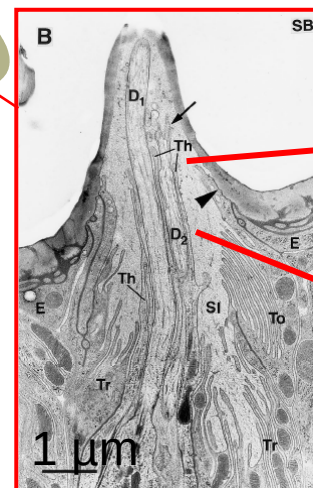
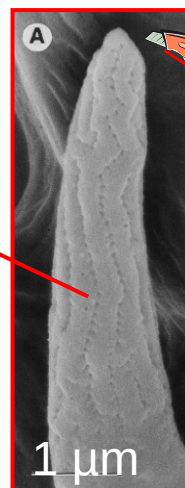
OLFACTORY SENSILLA

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longitudinal section of a chemosensillum

sensillar
pores



Dendrites of the
olfactory receptor
neuron

sensillar lymph



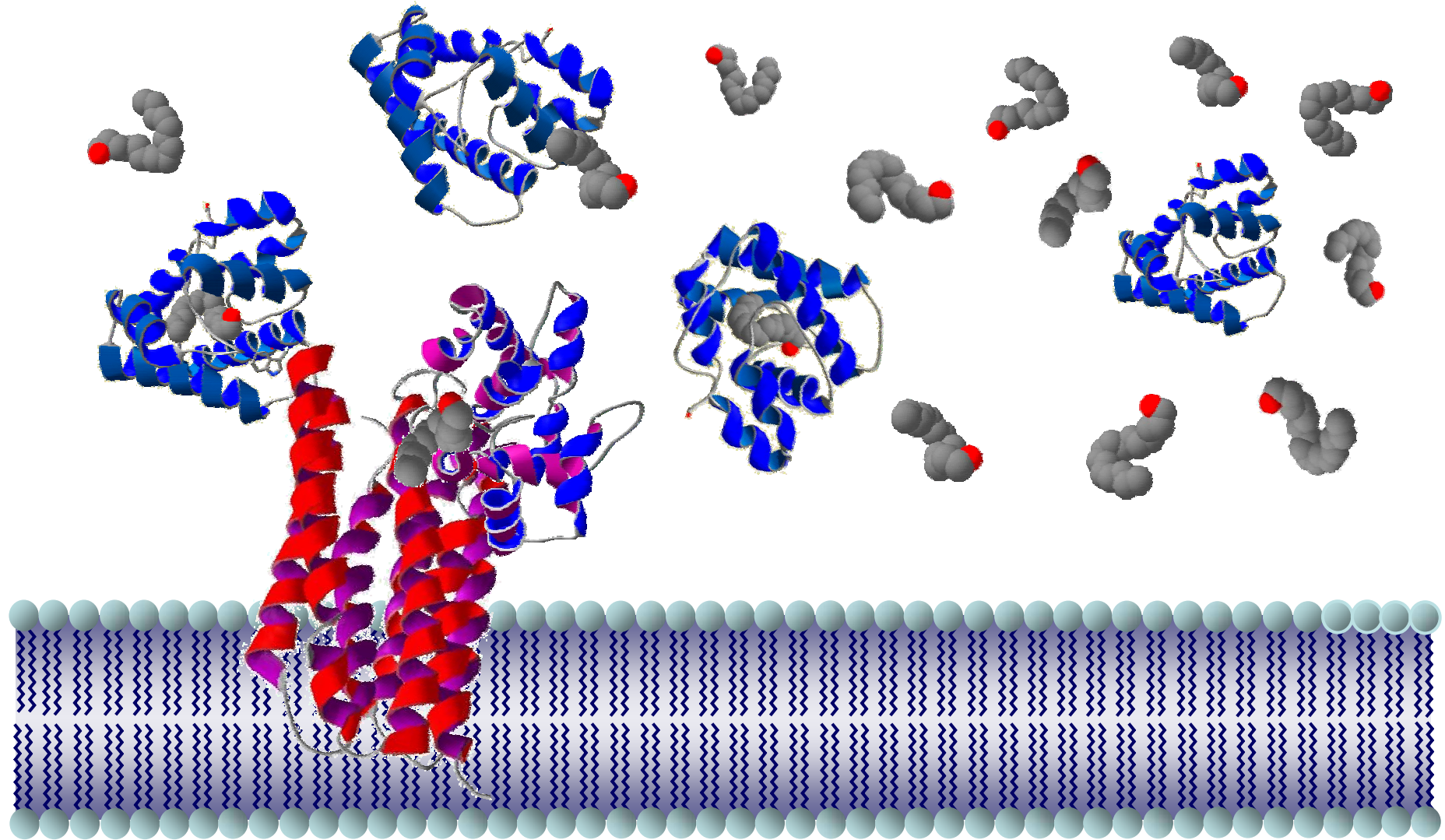
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C.I.S.M.

Proteins involved in the Perireceptor Events

OBPs Odorant Binding Protein and CSPs Chemosensory Proteins



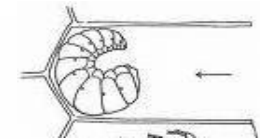
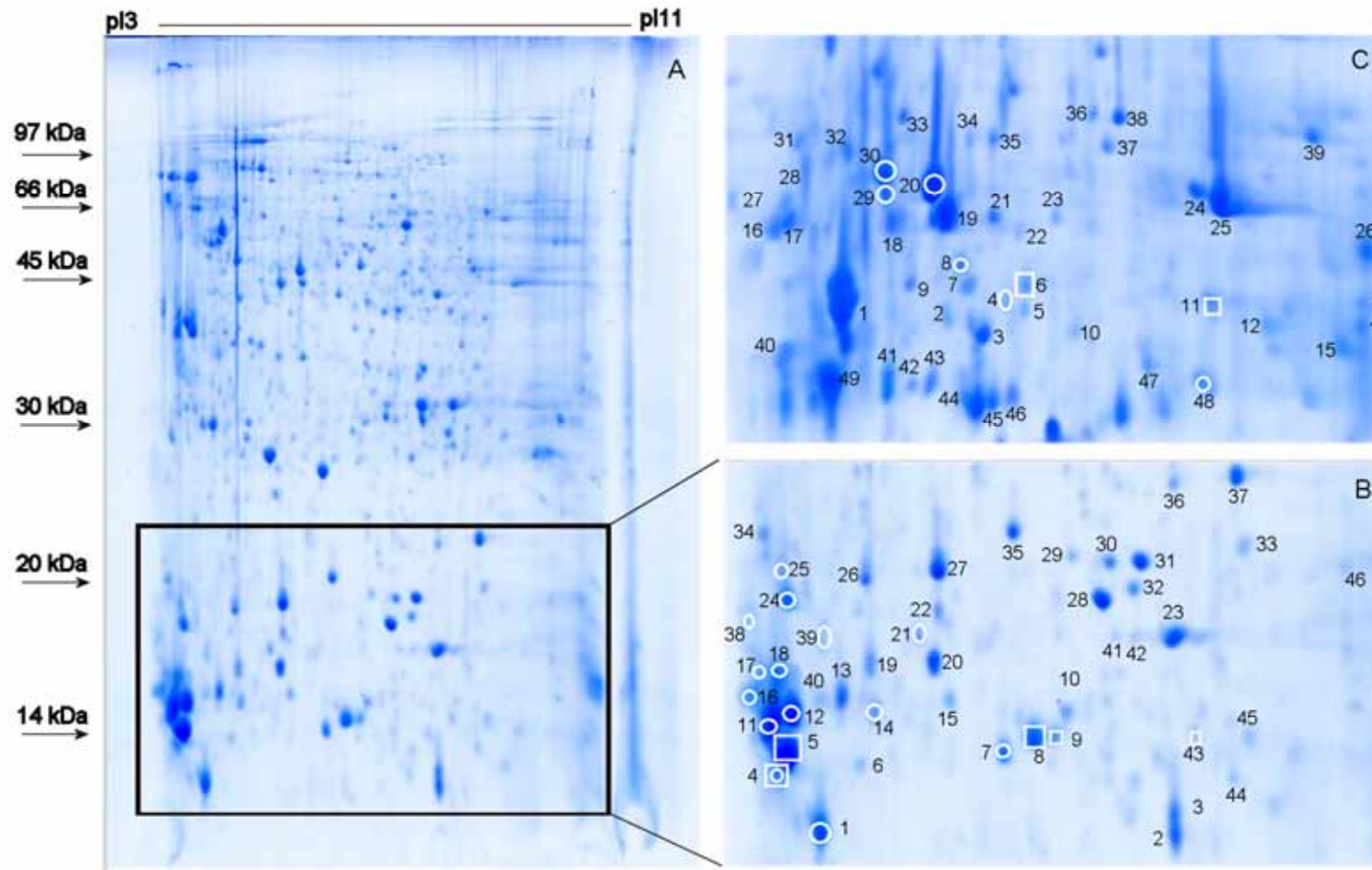


C.I.S.M.

Mapping the expression of soluble olfactory proteins in the honeybee.

Traditional proteomic approach: digestion of 2D gel spots and micro LC-ESI LTQ ORBITRAP analyses

21 OBP and 6 CSP genes identified in the genome



LARVAE

**3 OBPs and
1 CSP**



**WORKER
ANTENNAE**

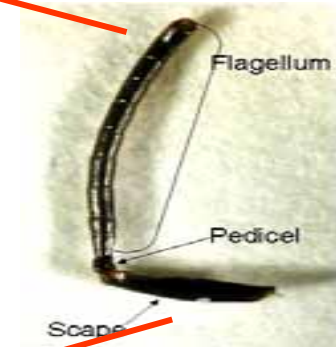
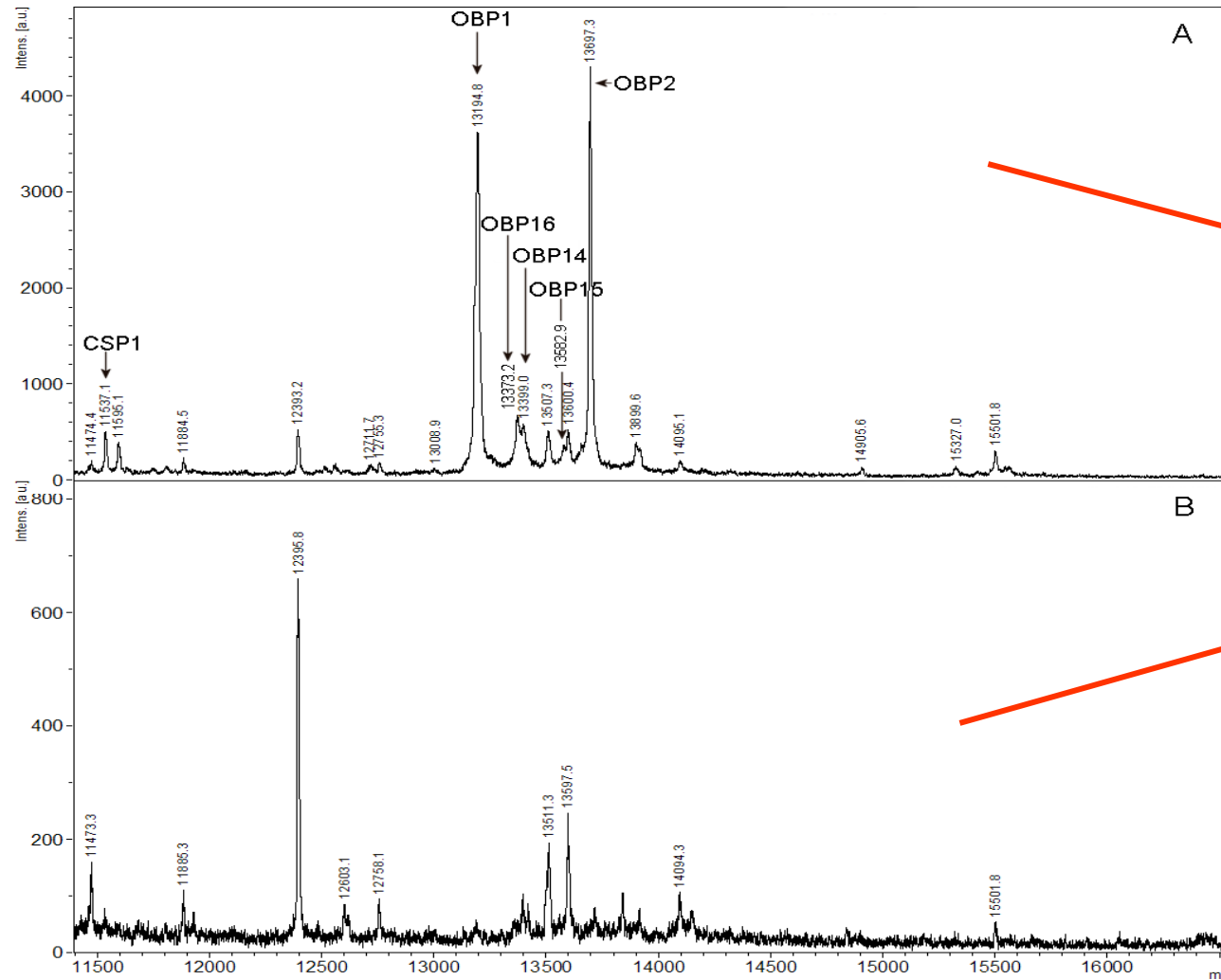
**12 OBPs and
2 CSPs**

Dani et al. 2010. *J. Proteomic Research*



Mapping the expression of soluble olfactory proteins in the honeybee: MALDI profiling

C.I.S.M.



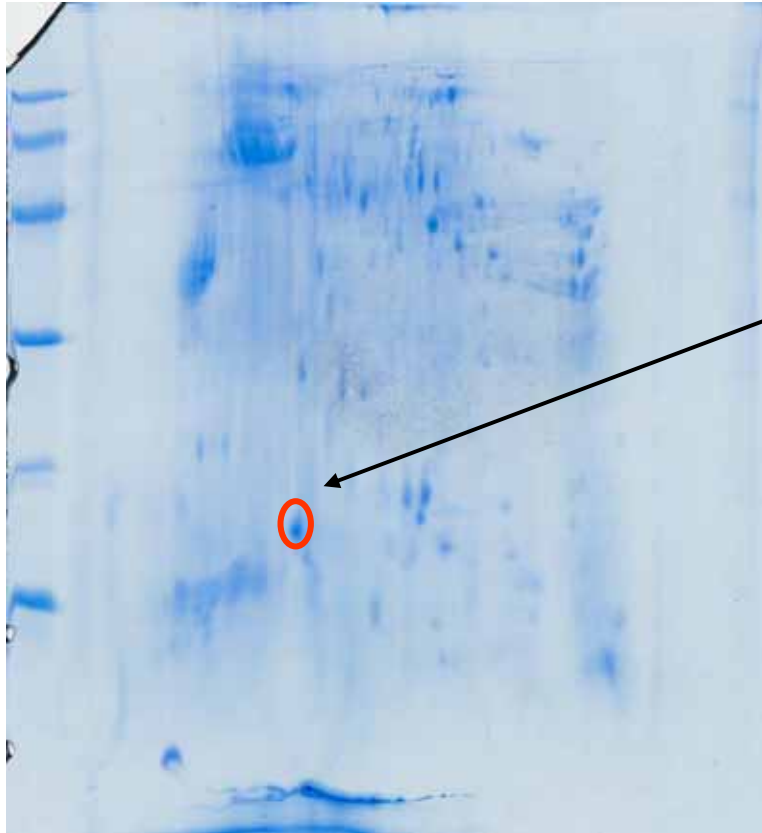
Dani et al. 2010. *J. Proteomic Research*



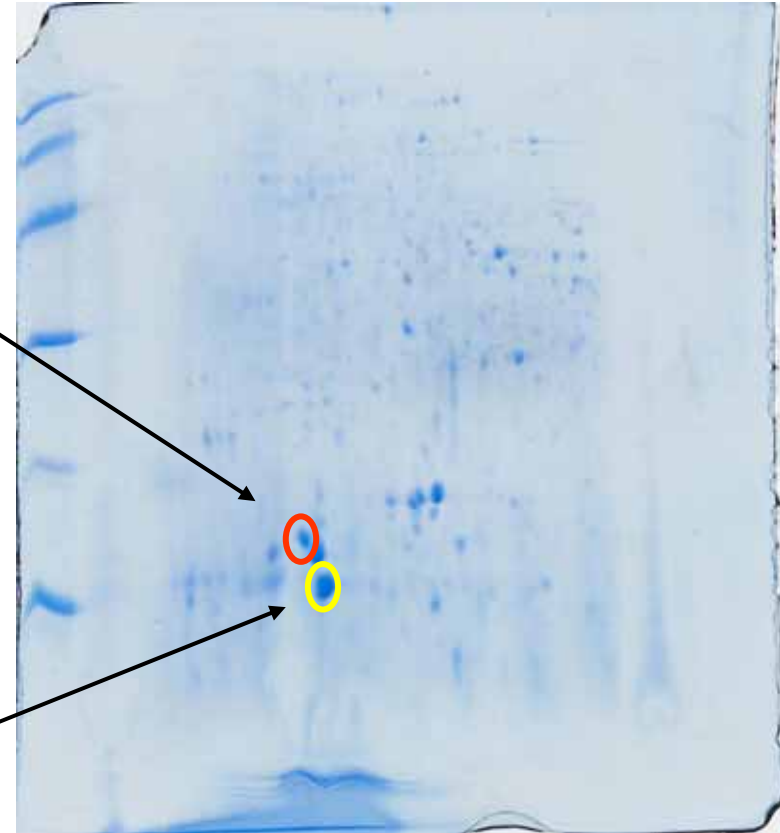
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Mapping the expression of soluble olfactory proteins in the mandibular gland of honeybee

WORKER MANDIBULAR GLANDS



QUEENS MANDIBULAR GLANDS

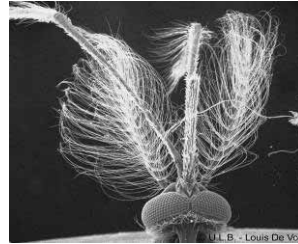


Is the queen specific OBP a carrier for the queen pheromone?

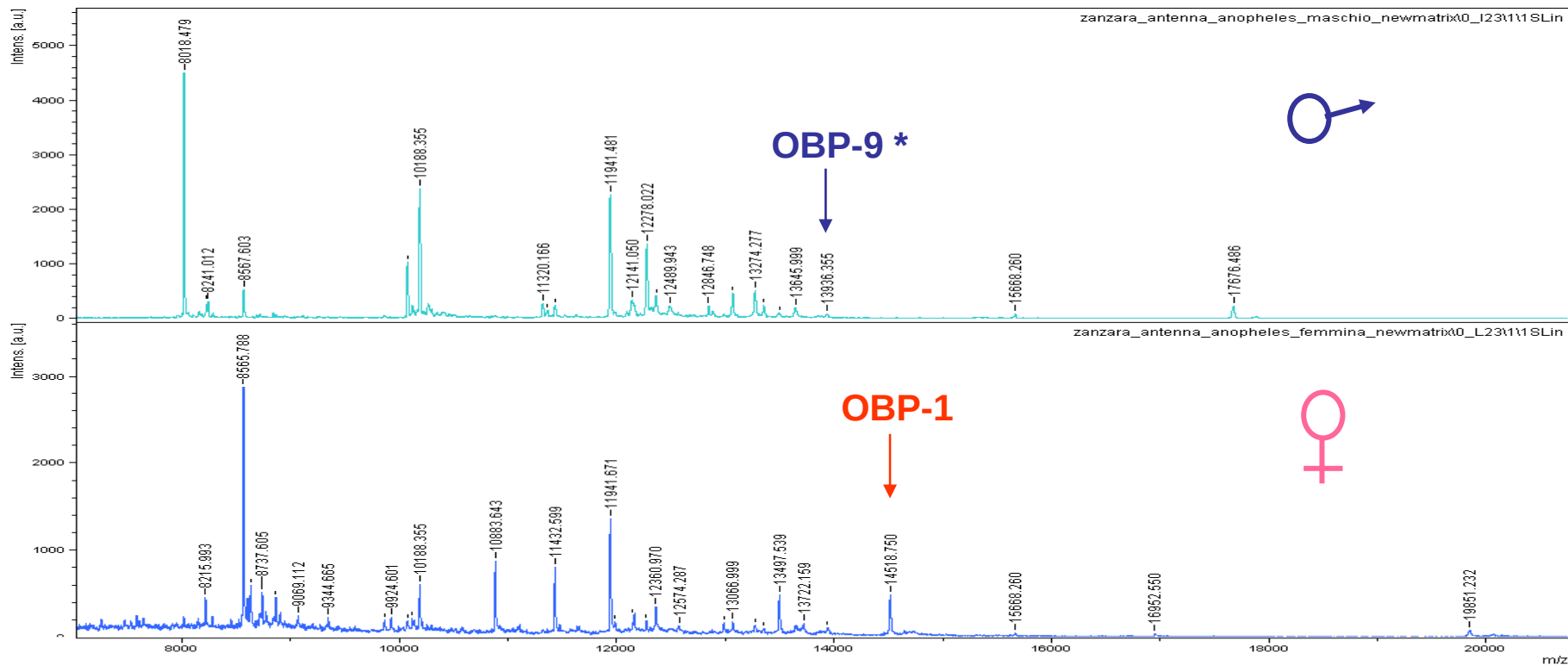


C.I.S.M.

Mapping the expression of soluble olfactory proteins in *Anopheles gambiae*: MALDI profiling



PRIN 2006
European Network ENAROMATIC



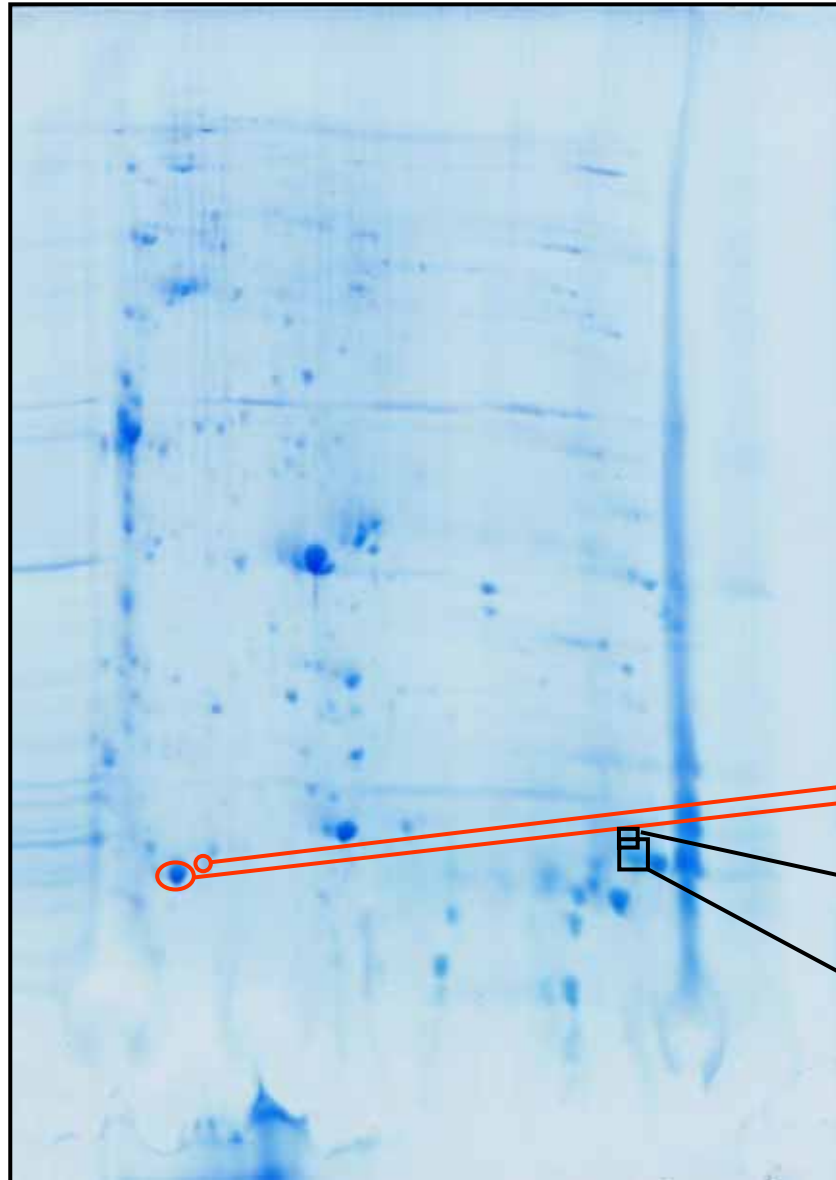
Dani et al. 2008. *Plos one*

*OBP-9 was identified in a topdown experiment



C.I.S.M.

Mapping the expression of soluble olfactory proteins in *Anopheles gambiae*



57 OBP and 7 CSP genes identified in the genome

ANTENNAE FROM 1100 MALES

OBP9

CSP

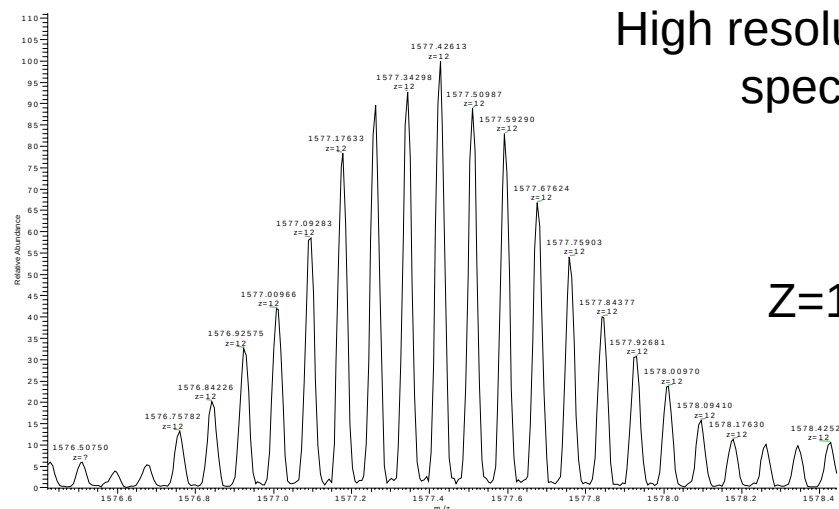
CSP SAP-3



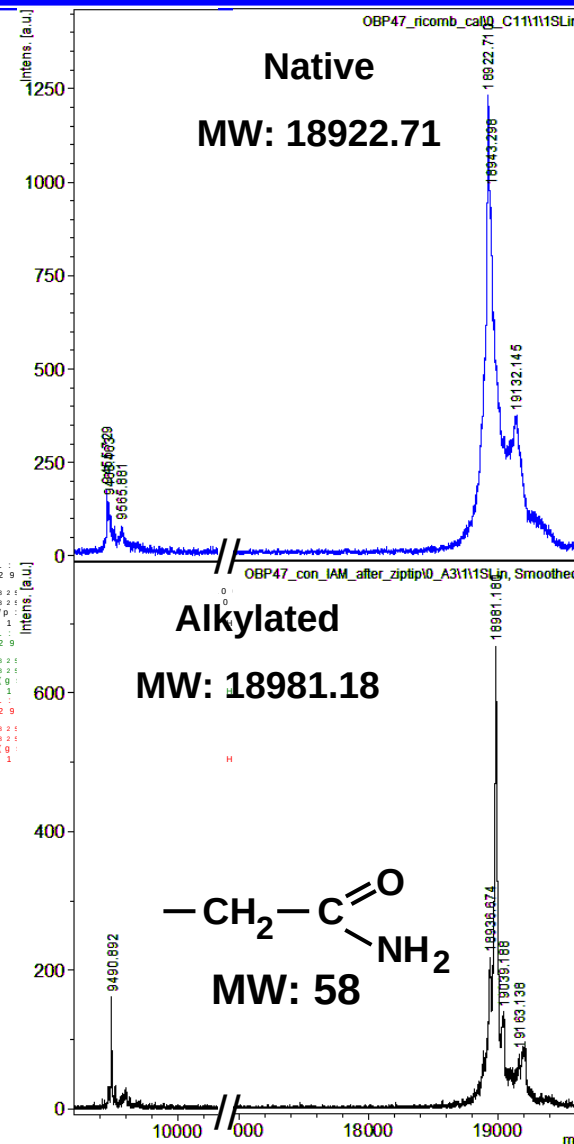
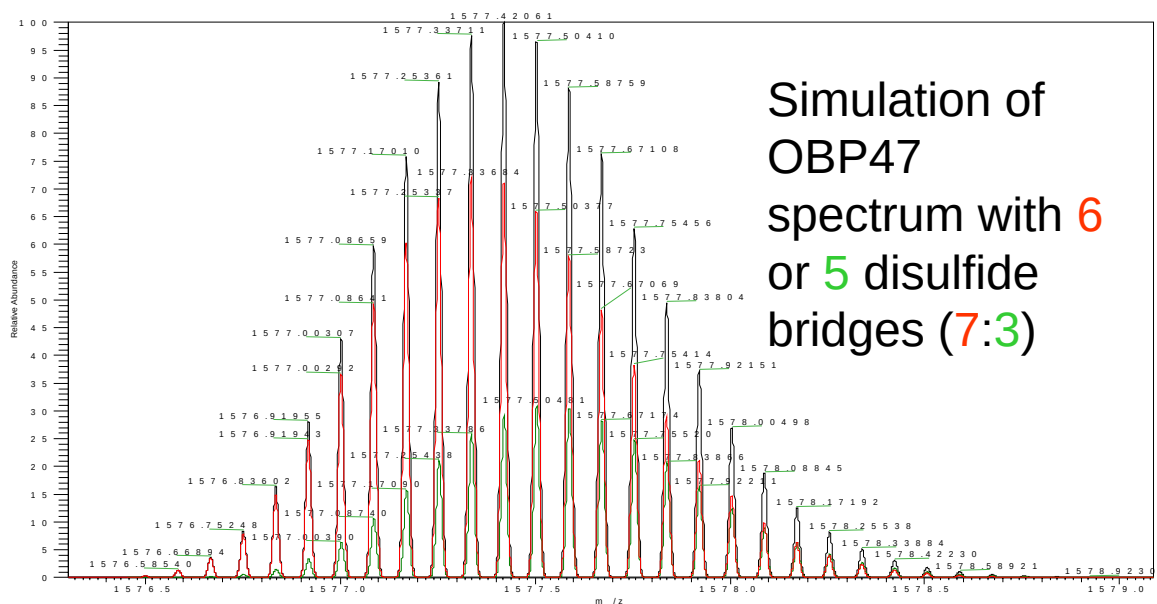
Analysis of OBP47, a 13 Cys OBP

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OBP47_Simulacrum.ms (1.17 MB) 5.55-5.57 AM 17 NL 2.2762
T: FTMS - p ESI Full ms [1200.00-2000.00]



Z=12



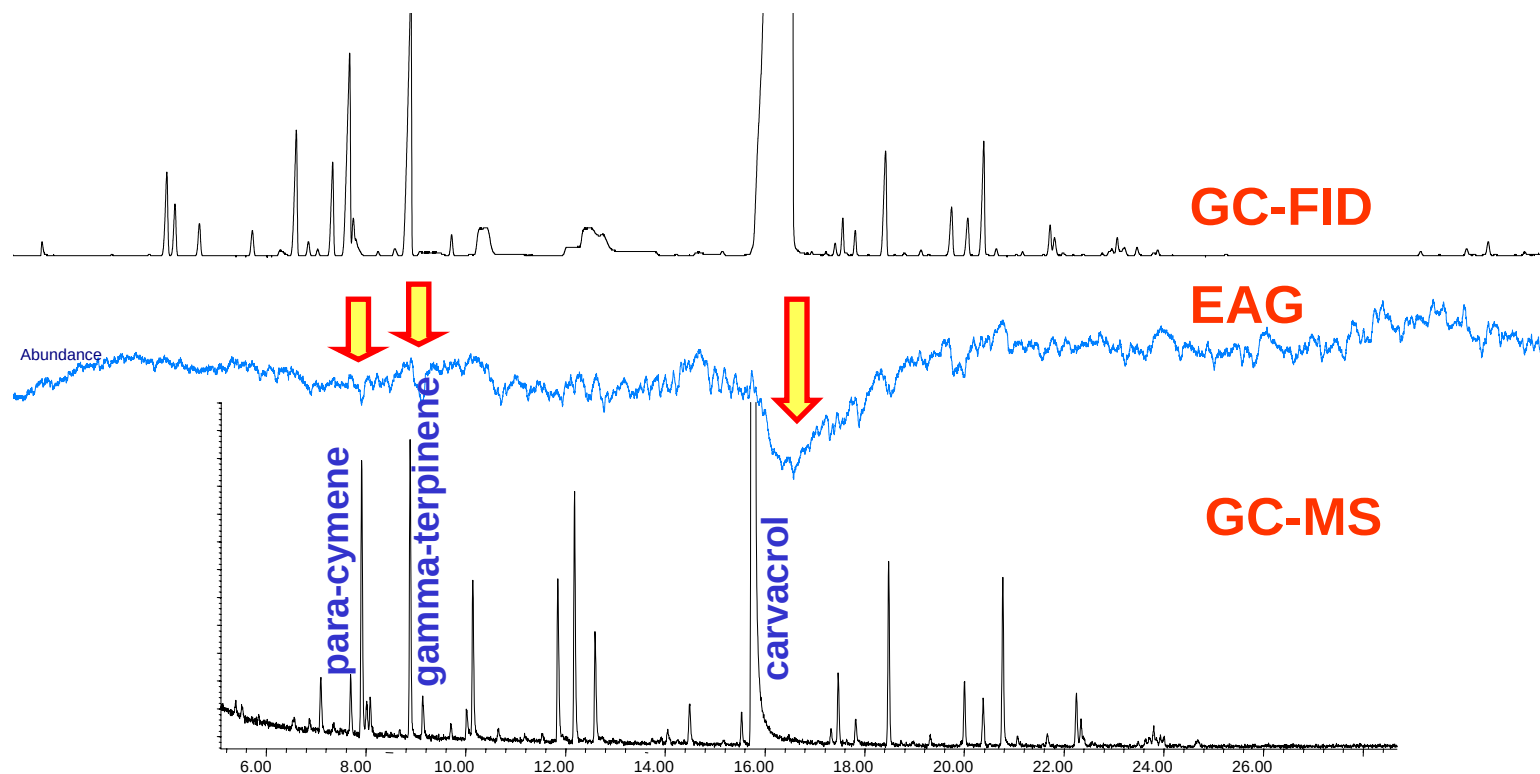
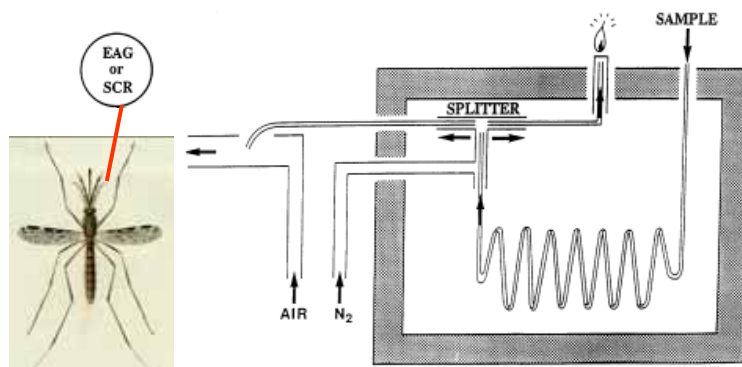


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Identification of compounds evoking antennogram responses to plant extracts in *A. gambiae*

ANTENNAL DETECTOR

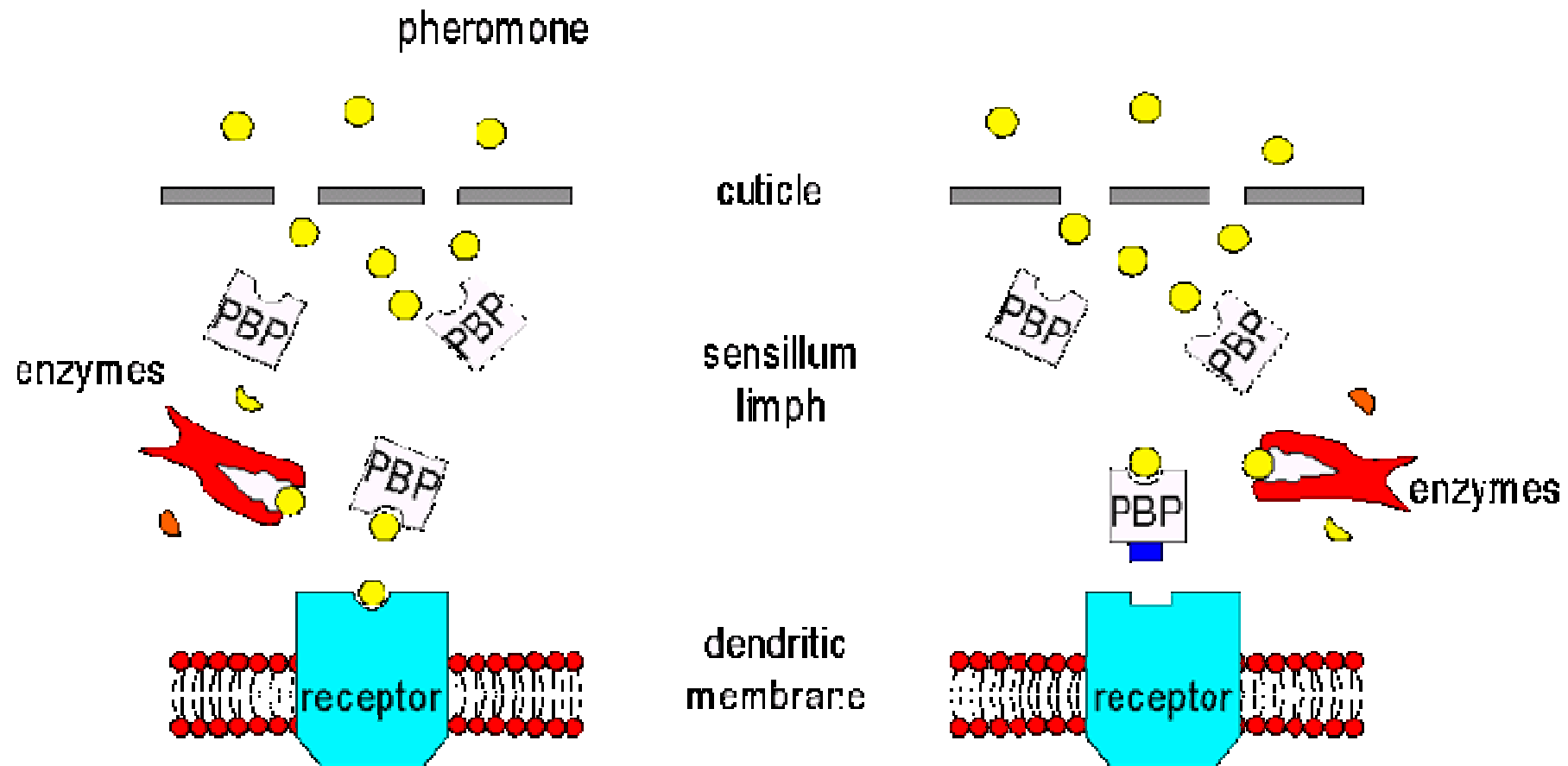
GC DETECTOR





Proteins involved in the Perireceptor Events

C.I.S.M.



PBPs and OBPs Pheromone and Odorant Binding Protein

CSPs Chemosensory Proteins